Top 10 Difficult Questions for Grade 8 Mathematics

Question Number: 1

Juan has forty dollars in his jacket. Every day he spends half of the money that is in the jacket. On the first day (Monday), he spends $20 leaving him with twenty dollars. On what day will he start with less than $3.00 in his jacket?

A) **Correct Answer**   Friday
B)   Thursday
C)   Tuesday
D)   Saturday

Explanation:
On Monday, Juan starts the day with 40 dollars. He ends the day with half that amount ($20.) He starts Tuesday with 20 dollars and ends with $10. He starts Wednesday with 10 dollars and ends the day with $5. He starts Thursday with 5 dollars and ends the day with $2.50. He starts Friday with $2.50. Friday is the first day that Juan starts with less than $3.
Functions 8.F.4

Question Number: 2

Mr. Smith is 81 years older than his grandson, Victor. In 3 years, Mr. Smith will be four times as old as Victor. How old is Victor now?

A)   21 years old
B)   22 years old
C) **Correct Answer**   24 years old
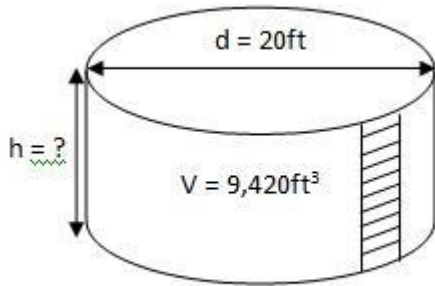D)   27 years old

Explanation:
Let v represent Victor's age. Then Mr. Smith's age would be represented by (v + 81.) Three years from now, Victor's age will be (v + 3), and Mr. Smith's age will be (v + 84). According to the problem, Mr. Smith's age 3 years from now (v + 84) will be equal to 4 times Victor's age 3 years from now (v + 3). As an equation this would be written: v + 84 = 4(v + 3). Solving for v yields the solution v = 24. Victor is now 24 years old.
Expressions and Equations 8.EE.7

Question Number: 3

Andy's job is to attach a ladder to a water tank. The water tank is a 20ft wide cylinder and has a volume of 9,420ft^3. If the length of the ladder is equal to the height of the water tank, how long is the ladder?

A) Correct Answer   30ft
B)   9.5ft
C)   8.9ft
D)   11ft

Explanation:
The water tank is a cylinder with a volume of 9,420ft^3 . Therefore 9,420 = (π) (r^2) (h) = (3.14) (10^2) (h) = (3.14) (100) h; h ≈ 30ft
Geometry 8.G.9

Question Number: 4

Which of the four functions has the largest rate of change?

Function 1:

X	Y
0	4
1	8
2	12

Function 3:

X	Y
0	3
1	6
2	9

Function 2: y = 2x + 3   Function 4: y = 3.5x

A) Correct Answer   Function 1
B)   Function 2
C)   Function 3
D)   Function 4

Explanation:
The rate of change for function 4 is 3.5, for function 3 is 3, for function 2 is 2, and for function 1 is 4. Therefore, function 1 has the largest rate of change.
Functions 8.F.2

Question Number: 5

Suppose three days ago was Tuesday. What day of the week will it be 90 days from today?

A)   Monday
B) Correct Answer   Thursday
C)   Friday
D)   Saturday

Explanation:

If, according to the problem, it was Tuesday three days ago, then today must be Friday. The days of the week repeat in sets of 7. If today is Friday, then 91 days from now will be Friday as well, since 91 is a multiple of 7. Thus, 90 days from now will be the day before Friday, or Thursday.

Expressions and Equations 8.EE.7

Question Number: 6

Al fills an ice cream cone to the top edge. The diameter of the ice cream cone is 2 inches and its height is 6 inches. Don fills a bowl (V = 5 cubic inches) with ice cream. Al has how much more ice cream than Don?

A) 1.2in^3
B) Correct Answer 1.28in^3
C) 1.1in^3
D) 1in^3

Explanation:

The ice cream cone has a diameter of 2 inches and a height of 6 inches.
Therefore the volume of the cone $V = (1/3)\,(\pi)\,(r^2)\,(h) = (1/3)\,(3.14)\,(1)\,(6) = 18.84/3 = 6.28\text{in}^3$
The difference in volume is $6.28 - 5 = 1.28\text{in}^3$

Geometry 8.G.9

Question Number: 7

Kelsey got a 74% on her Social Studies test. The test had 50 questions. How many questions did she NOT answer correctly?

A)   12
B)   50
C) Correct Answer   13
D)   37

Explanation:
If Kelsey scored 74% on a 50-question test, then she answered 37 of the questions correctly.
(0.74 · 50 = 37.) This means she answered the remaining 13 questions incorrectly.
Expressions and Equations 8.EE.7

Question Number: 8

What is the volume of a cone with the height of 6 inches and the diameter of 4 inches?

A)   25.20in³
B) Correct Answer   25.12in³
C)   26in³
D)   25in³

Explanation:
The equation for the volume of a cone is $V = \pi \times r^{2} \times h / 3$
r is the determine by D/2, which is: 4cm / 2 = 2cm, insert the value of r we have:
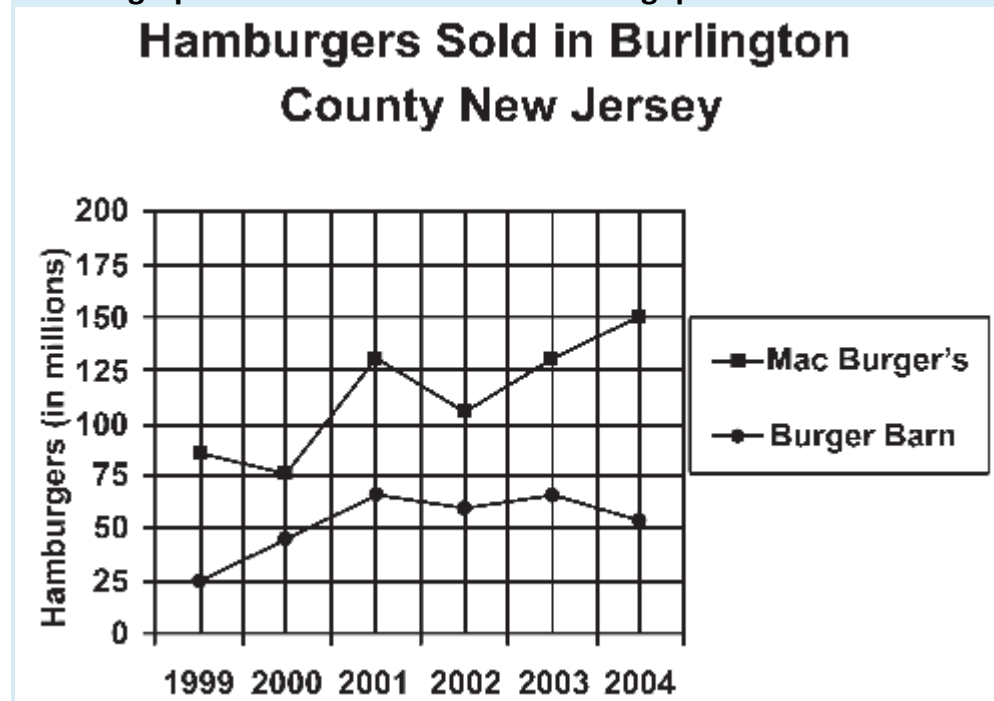$V = 3.14 \times 2^{2} \times 6 / 3$
V = 75.36 / 3 = 25.12 cubic inches
Geometry 8.G.9

Question Number: 9

Use the graph below to answer the following question.

Hamburgers Sold in Burlington County New Jersey

During what time period did the sales of Burger Barn's hamburgers remain virtually unchanged?

A)   1999-2001
B)   2000-2002
C) **Correct Answer**   2001-2003
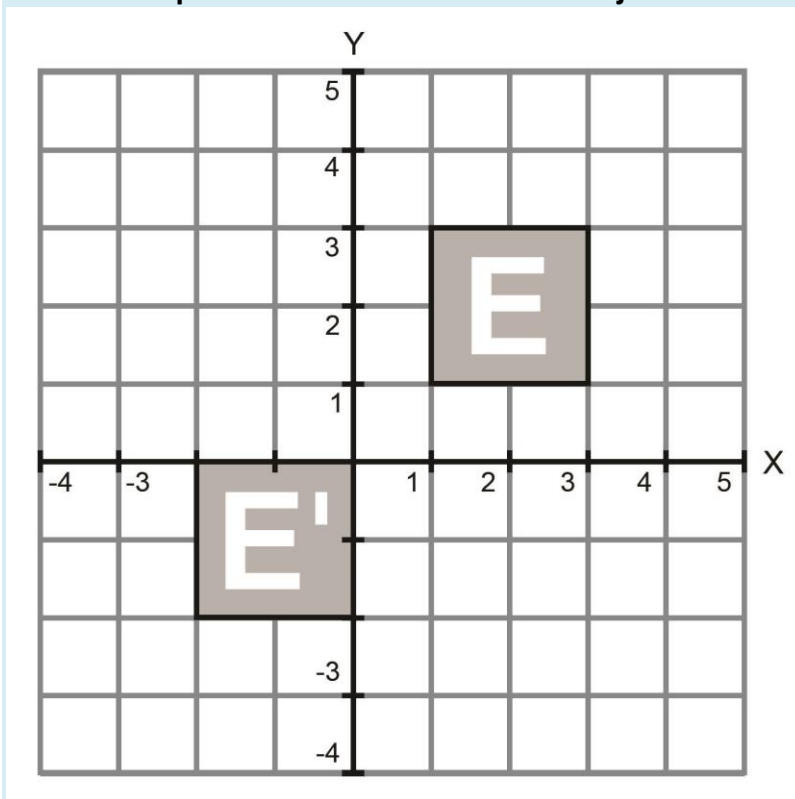D)   None of the above

Explanation:
The time period showing the slightest change in sales at Burger Barn is from 2001-2003. The downward and upward slopes of the line segments are very slight (almost horizontal) representing very little change in the hamburger sales during this time period.
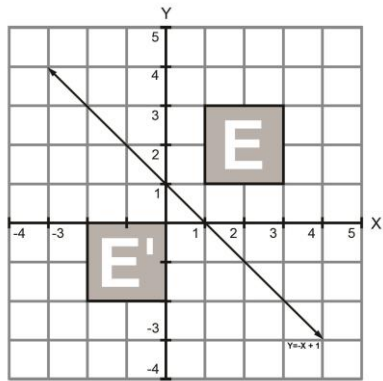**Functions 8.F.5**

Question Number: 10

In a coordinate plane a figure can be reflected by a line other than the x- or y - axis. Identify the linear equation for the reflection of Object E and E'?

A) **Correct Answer** $y = -x + 1$

B) $y = 0.5x$

C) $y = 0$

D) $y = x$

Explanation:

A reflection is a transformation that creates a mirror image of each point. According to the graph the line would run between the points E' {(0,0), (0,2)} and E {(1,1),(3,1)}. This yields a slope of -1 with a y-intercept of 1.

Geometry 8.G.3